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FIELD ACCEPTANCE: EXPRESS ENTREES AND MEAL, READY-TO-EAT NUTRITIONAL LABELING

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PREFACE

The final report of the Express Entrees and the Nutritional Labeling of the Meal, Ready-to-Eat (MRE) was prepared by the U.S. Army Soldier Systems Command, Natick Research, Development and Engineering Center (NRDEC). Data collection took place during 2-11 September at Yakima Training Center, Yakima, WA with soldiers from the 1/37 Field Artillery Battalion from Ft. Lewis, WA. Ms. Kathryn Rock was the project officer for the evaluation and is affiliated with NRDEC Behavioral Sciences Division, Science and Technology Directorate. The report was prepared under Project No. 11AAOKOO.

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FIELD ACCEPTANCE: EXPRESS ENTREES AND MEAL, READY-TO-EAT NUTRITIONAL LABELING

INTRODUCTION

A field evaluation was conducted by NRDEC at the Yakima Training Center in Yakima, WA, in September 1995 to examine acceptance of the "Express" (Easy Meal) Entree, Heat and Serve menus, and FDA-style "Nutrition Facts" label for the MRE. The "Express" Entrees used in the present study were taken from copywrited "Easy Meal Menus" that were developed by a commercial firm. For this test these entrees are referred to as "Express" Entrees. Natick researchers agreed to evaluate these entrees in a field context in response to interest from the U.S. Army Quartermaster Center and School, to determine if they have a place in feeding hot meals to groups of soldiers in operational scenarios. This report presents primarily the findings on Express Entree acceptability, MRE Nutritional Labeling, and also provides an overview of the test methodology and procedures.

The Express Meals are freeze-dried entrees designed for lunch/dinner menus; however, they were served exclusively for dinner in this evaluation. The dehydrated menus are similar to the dehydrated entrees used in the Long-Range-Patrol (LRP) and Ration-Cold-Weather (RCW) except that these products were packaged to provide multiple servings. These multiple servings were configured to be the entree for the 18-man module. The packaging of the entree varied to evaluate the ease of use of different packaging types. The first five days of the study the entrees were packaged in cans and for days six through ten the entrees used were contained in poly bags, then brick packaged in a foil-laminate bag. Foods can be reconstituted in, and served from, the packaging container. All that is needed is hot water and a stirring utensil. Heat and Serve vegetables and desserts were also provided to supplement the entree. Like the Heat and Serve, this menu included instant beverages, nondairy creamer, hot sauce, cups, and utensils.

The MRE contains an entree, starch, crackers, a spread (cheese, peanut butter or jelly), a dessert, snack, beverages, an accessory packet, plastic spoon and a Flameless Ration Heater (FRH). The flexibly packaged foods are heat processed in retortable pouches. The components are lightweight, compact, and easily opened. The shelf life is a minimum of three years at 80° or six months at 100°F. As of July 1994, Federal regulations require nutritional labeling of all commercial products. Although operational rations are exempt from those regulations, The Office of the Surgeon General (OTSG) and the Joint Services Military Nutrition Committee (MNC) requested that military rations be nutritionally labeled to provide a cost effective, educational tool for increasing awareness of military personnel as to the importance of maintaining a proper, nutritionally balanced diet.

Focus group testing of prototype labels was conducted at Ft. Lewis, WA, in 1994. The opinions of participants supported the usefulness of FDA's Labeling Regulations and indicated that an FDA-style label was the preferred approach. Participants also indicated they wanted a "User Information" sheet to include label explanations and relevant information of interest that might be changed periodically. All MRE food items contained FDA style "Nutrition Facts" labels for the entire evaluation. A nutritional insert was also included in the MRE during the last five days. This insert included information such as vitamin and mineral fortification and calorie

content of the MRE.

The Heat and Serve components are thermally-processed prepared, shelf-stable foods packaged in hermetically sealed half-sized steam table metal containers. This ration provides entrees for breakfast and lunch/dinner menus, along with desserts and instant beverages, non-dairy creamer, hot sauce, cups, utensils, and five compartment trays for eating. The shelf life is a minimum of three years at 80°F. For this evaluation, only breakfast menus were used.

METHODOLOGY

TEST SUBJECTS

A total of 40 soldiers of the Service Battery, 1/37th Field Artillery, from Ft. Lewis, WA, participated in this evaluation. During this evaluation, the battery was engaged in a planned field exercise at the Yakima Training Center in Yakima, WA. Three participants were not included in the data analysis because of incomplete data. Each test subject was assigned to a data collector that the subject would meet with on a daily basis. There was a total of five data collectors who were each responsible for eight subjects.

TRAINING

Yakima Training Center is located approximately 200 miles southeast of Seattle, WA. The terrain is desert type with dry sandy soil, scrub vegetation and no trees. Weather conditions were generally temperate; the average temperature was approximately 40 degrees at night and rose to an average of 80 degrees during the day. It was mostly dry and dusty, although one day a period of heavy rain did occur.

Soldiers trained at a single location throughout the 10-day field exercise. Their training consisted of missions servicing other batteries, including preparation of all hot food, assembling meals for distribution, providing fuel for vehicles, and ammunition for Howitzers and weapons.

RATION AND RATION DISTRIBUTION

The daily ration cycle remained the same throughout the field exercise, a Heat and Serve breakfast, an MRE lunch, and the Express Entree for dinner. Breakfast was served daily between 0730 and 0900 and dinner was served each night between 1630 and 1900. The MRE XV with nutrient labels was distributed to the soldiers from the Mobile Kitchen Trailer (MKT) at the breakfast meal, allowing soldiers to eat their MRE at their convenience during the day.

Heat and Serve items were heated using immersion heaters and served from the MKT. The Express entrees were rehydrated in metal bowls or trays with hot water and placed over M2 burners with other heated food items for serving. Served along with every meal was bread, milk, and fresh fruit (apples, pears, bananas, and oranges), with an addition of cold cereal at the breakfast meal and salad at the dinner meal. Drinks were made in large batches and placed outside the MKT on a table with cups and condiments, in a self-serve area. Shelf-stable milk, both white and chocolate, in 8 oz containers was also available in the self-serve area. Hot meals were eaten in/on vehicles, in tents, and on the ground. Appendix A and B contains the MRE, Heat and Serve breakfast and Express dinner menus used in this field evaluation.

DATA COLLECTION

Data obtained in this evaluation included ration acceptance and consumption, questionnaires to obtain soldiers' demographics and opinions of the rations, and body weight. Table 1 illustrates the data collection schedule for this evaluation.

TABLE 1 DATA COLLECTION SCHEDULE

	Base-Line	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Day 8	Day 9	Day 10
Background Questionnaire	X										
Body Weight		X			X			X			X
Food/Water Intake		X	X	X	X	X	X	X	X	X	X
Food Acceptance		X	X	X	X	X	X	X	X	X	X
Final Questionnaire											X
Focus Group											X

BASELINE TESTING

Prior to the field evaluation, soldiers were briefed on the purpose of the field evaluation and testing procedures. At the conclusion of the briefing, soldiers completed a short questionnaire providing demographic and baseline ration opinions. See Appendix C for the background questionnaire used in this evaluation.

BODY WEIGHTS

Body weights were recorded throughout the evaluation on days 1, 4, 7, and 10, prior to the breakfast meal. The purpose of measuring body weight was to determine how much weight fluctuation was experienced by the soldiers subsisting on the military rations.

Body weight was measured on digital scales. Plywood boards were used in order to provide a level, rigid surface for placement of the scales. Scale calibration was checked prior to the study using calibrated weights. In addition, data collectors weighed themselves each morning before departing for the field and several times during the course of the weight data collection in order to ensure that scales remained calibrated. Soldiers were asked to remove any

heavy garments (i.e. helmet and/or jackets) and any items in their pockets that may have had an influence on their weight. Also, data collectors noted types of clothing and footwear on the soldier at the time of weigh-in. This was done with a weight checklist, as shown in Appendix D.

FOOD ACCEPTANCE

Food acceptance data were collected to determine the degree to which the items in each ration were liked or disliked by the soldiers. Food acceptance was assessed using the standard nine-point hedonic rating scale, which ranges from 1= Dislike Extremely to 9= Like Extremely. For each meal, data collectors distributed acceptance/intake forms that had this scale printed next to each item (see Table 2). Soldiers were instructed to rate only the items they consumed at that meal.

TABLE 2 NINE-POINT HEDONIC RATING SCALE

Dislike Extremely	Dislike Very Much	Dislike Moderately	Dislike Slightly	Neither Like Nor Dislike	Like Slightly	Like Moderately	Like Very Much	Like Extremely
1	2	3	4	5	6	7	8	9

Acceptability ratings for the MRE food items were collected daily at the morning meal. Soldiers received the MRE acceptability form (see Appendix E) at the breakfast meal, completed it over a 24-hour period, and returned the form to the data collector at the following breakfast meal. Heat and Serve food acceptability rating forms were distributed before the breakfast meal and the Express food acceptability forms were distributed before the dinner meal (see Appendix F). Soldiers returned these rating forms after eating their meals. The data collectors reviewed each form when collected to ensure completeness and accuracy. If a subject consumed an item more than once over the course of the study, his ratings were averaged and this average was used when the overall acceptability rating was calculated. This approach yields mean responses with equal weight given to each participant.

FOOD AND WATER INTAKE

Food intake was measured to determine the caloric and nutrient intake of the soldiers for each ration (Heat and Serve, MRE, and Express Meal). For nutritional analysis purposes, data collectors recorded estimated plate measures during the breakfast and dinner meals. To measure MRE food intake, soldiers completed the MRE acceptability/intake form described earlier (see Appendix E), and were also provided a zip-lock plastic bag for all MRE food waste. Since MRE meals were distributed in the morning along with acceptability/intake forms, the zip lock bag was collected at the following morning meal. MRE food waste/trash and acceptability/intake forms were collected from each soldier and later checked by data collectors to verify all responses on intake forms. Any discrepancy between the two sources of food intake information was noted and resolved with the individual at the evening meal.

Data collectors used a "standard" tray of food to visually estimate the Heat and Serve and Express Meal Rations. Food items on the standard tray of food were measured (with 8 oz cup), following recommended serving sizes of each item. Trained data collectors prepared these trays prior to each hot meal and recorded estimated plate measures by comparing each soldier's tray of food to the standard tray. These measures were recorded before a soldier ate to determine the amount of food served and measured again after the soldier ate to determine how much was consumed. See Appendix G for the Plate Waste form. After each soldier had been served a meal, the soldier would meet with the designated data collector to receive an acceptability/intake form; during this time the data collector would record estimated plate measures. Following the breakfast and dinner meals, acceptability forms were collected.

NUTRITIONAL LABELING

For this evaluation, the MRE XV contained FDA-style "Nutrition Facts" labels (Appendix H) and an MRE nutritional insert for user evaluation. During the 10-day evaluation, soldiers received the MRE with the "Nutrition Facts" label for Days 1-5, and for Days 6-10 they received the labeled MRE along with the nutritional insert. However, due to ration distribution problems, most soldiers only saw the proper MRE menus with the nutritional insert on Days 8 and 9. Nutritional knowledge and attitude data were collected using the background questionnaire. On Day 5, prior to the soldiers receiving the MRE insert along with the labels, soldiers completed a mid-point questionnaire evaluating the label only. Similar information was collected on the final questionnaire. See Appendix I for the Nutritional Facts Label Questionnaire.

FINAL QUESTIONNAIRE

On the last day of data collection (Day 10) the test participants completed a final questionnaire. This questionnaire was designed to obtain soldiers opinions on general aspects of the rations and eating habits during the exercise. Appendix J contains the final questionnaire used in this evaluation.

FOCUS GROUP

On the last day of data collection (Day 10), a small group of subjects (approximately 10) were gathered and asked to participate in a focus group discussion. The soldiers that were interviewed offered additional comments and recommendations for the current and new menus evaluated during this study. Appendix K lists the soldiers' suggestions.

DEMOGRAPHICS

Table 3 summarizes the demographic characteristics of the Service Battery in terms of average age, length of service, distribution of ranks, highest level of education, ethnic group and region of origin. Of the 40 soldiers in the Service group, 37 were present throughout the study. These 37 were used to obtain the results below. All of the soldiers were male. The average age

was 26 years. Approximately 41% of the sample were white, about 32% black and 22% Hispanic. Over 97% of the sample were enlisted personnel, mostly E-4's. Only 27% have ever been deployed; 18.9 % to Saudi Arabia, 8.1% to Panama, and 2.7% to Sinai. The average length of time in the armed services was approximately 66 months and more than 56 % have completed at least some college.

TABLE 3 SAMPLE DEMOGRAPHICS (N = 37)

		SD
<u>Age (Average in Years)</u>	26.0	± 5.21
<u>Months of Service</u>	66.4	± 54.50
<u>Ethnic Group (%)</u>		
White	40.5	
Black	32.4	
Hispanic	21.6	
Asian/ Pacific Islander	5.4	
American Indian/ Alaskan Native	0.0	
Other (please specify) _____	0.0	
<u>What part of the country have you lived the longest (%)</u>		
New England	0.0	
Middle Atlantic	13.5	
South Atlantic	29.7	
North Central	13.5	
South Central	18.9	
Mountain	2.7	
Pacific	18.9	
Other (please specify) Philippines	2.7	
<u>What is the highest level of education you have completed (%)</u>		
Finished Grade School	0.0	
Some High School	2.7	
High School Graduate or Equivalent	40.5	
Some College	48.6	
College Graduate	8.1	

(CONTINUED)

<u>Distribution of Ranks (%)</u>					
<u>Enlisted</u>		<u>Enlisted</u>		<u>Officer</u>	
E-1	2.5%	E-5	17.5%	O-2	2.5%
E-2	10.0%	E-6	5.0%		
E-3	15.0%	E-7	5.0%		
E-4	42.5%				

RESULTS

SECTION I - MRE

ACCEPTABILITY

Acceptability of MRE food items was rated daily using a 9-point hedonic scale, which ranged from 1= Dislike Extremely to 9= Like Extremely. Below are the mean acceptance ratings of each item along with the standard deviation and the number of respondents. The number of responses (N) is the number of subjects who rated a particular food item. If a subject rated an item more than once, his ratings were averaged and this average was used when the overall acceptability rating was calculated. This approach yields mean responses with equal weight given to each participant.

ENTREES: The soldiers liked all the entrees, as indicated by acceptability ratings above the midpoint of the scale. Pork w/ Rice was the least acceptable of the entrees, but still had a mean rating above the scale midpoint of 5.0. Grilled Chicken (7.1), Spaghetti w/ Meat Sauce (7.1), Chicken w/ Rice (7.1), and Beef Stew in particular (7.7), received the highest ratings.

TABLE 4 MRE ENTREE ACCEPTABILITY

	Mean	SD	N
Beef Stew	7.7	1.0	13
Spaghetti w/ Meat Sauce	7.1	1.2	13
Chicken w/ Rice	7.1	1.5	18
Grilled Chicken	7.1	1.7	21
Ham Slices	7.0	1.4	9*
Pork Chow Mein	6.9	1.9	13
Chili Macaroni	6.8	1.6	16
Chicken Stew	6.8	2.2	13
Escalloped Potatoes w/ Ham	6.1	1.8	13
Tuna w/ Noodles	6.0	2.0	14
Smoky Franks	6.0	2.7	16
Pork w/ Rice	5.4	2.3	13

* Ratings of items by less than 10 respondents ($n \leq 10$) should not be considered as accurate as ratings by a greater number of respondents.

STARCHES: Most of the starch items were well received by participants. Potato Au Gratin scored the lowest rating (5.0), while Chow Mein Noodles rated highest at 6.9.

TABLE 5 MRE STARCH ACCEPTABILITY

	Mean	SD	N
Chow Mein Noodles	6.9	2.0	12
MRE Cracker	6.2	1.6	32
Potato Au Gratin	5.0	2.8	13

SPREADS: All of the spreads rated higher than 6.0, "Like Slightly".

TABLE 6 MRE SPREAD ACCEPTABILITY

	Mean	SD	N
Cheese Spread	6.9	1.7	29
Peanut Butter	6.1	1.1	13
Jelly	6.1	1.9	17

SNACKS/CANDY: Numerous snack/candy items were evaluated and all received ratings above 6.0, "Like Slightly". The Tavern Nuts and M&M's scored the highest with ratings ≥ 7.8 . While, the Chocolate Covered Brownie scored lowest at 6.0.

TABLE 7 MRE SNACK/ CANDY ACCEPTABILITY

	Mean	SD	N
Tavern Nuts	7.9	.9	14
M&M's	7.8	1.3	29
Tootsie Rolls	7.6	1.3	15
Potato Sticks	7.6	1.5	17
Charms	6.8	2.0	16
Chocolate Mint Pound Cake	6.2	2.3	29
Oatmeal Cookie Bar	6.1	2.4	14
Chocolate Covered Brownie	6.0	2.5	23

FRUIT: Of the MRE fruits that were evaluated, the Applesauce (7.6) and the Wet-pack Pears (7.6) received the highest rating. The Freeze-dried Pears (6.2) were the only fruit that scored below "Like Moderately".

TABLE 8 MRE FRUIT ACCEPTABILITY

	Mean	SD	N
Wet Pack Pears	7.6	.9	8*
Applesauce	7.6	1.1	17
Wet Pack Pineapple	7.4	2.7	12
Freeze-dried Pears	6.2	2.1	10

DRINKS: Soldiers rated all of the drinks above 6.5. The favorite among this group seemed to be the Lemon-lime Beverage which scored 8.5, "Like Extremely". The Lemon Tea was voted the least acceptable, with a rating of 6.6.

TABLE 9 MRE DRINK ACCEPTABILITY

	Mean	SD	N
Lemon Lime Beverage Base	8.5	.8	8*
Grape Beverage Base	8.0	1.1	10
Sugar Free Fruit Punch	7.9	1.4	13
Cherry Beverage Base	7.6	1.1	10
Sugar Free Beverage Unknown	7.4	1.8	10
Sugar Free Lemonade	7.3	1.6	8
Beverage Base Sugar Unknown	7.1	1.4	11
Lemon Tea	6.6	1.9	8

ACCESSORY ITEMS: Of the accessory items evaluated all rated above 6.0, "Like Slightly".

TABLE 10 MRE ACCESSORY ITEM ACCEPTABILITY

	Mean	SD	N
Gum	7.3	1.2	32
Sugar	6.9	1.6	12
Tabasco Sauce	6.8	1.5	23
Salt	6.4	1.6	14

OVERALL RATING: The soldiers were requested to rate the overall MRE each day. The soldiers liked the MRE meal, as indicated by acceptability ratings of 6.3, "Like Slightly". On the background questionnaire, prior to the evaluation, soldiers were asked how much they Dislike/Like the overall MRE. The soldiers responded with a mean rating of 4.6, below the midpoint of the scale. It is reasonable to conclude that soldiers liked the newer version of the MRE.

HEATING

Prior to the evaluation, the soldiers were asked how they typically heat the MRE entree. The Flameless Ration Heater (FRH) was the heating mechanism most widely used by soldiers to heat their MRE. Although 43% responded that they typically do not heat the MRE, most soldiers did find some way to heat their entree before consuming. Some of the soldiers invented interesting ways to heat their entree when a heating mechanism wasn't available, including "putting in exhaust pipe" (8) and "letting sit in sun" (1). Table 11 is a list of how soldiers typically heat their MRE. During this evaluation, 70% soldiers heated their entrees before consuming. Soldiers reported that it is convenient to heat the entree with the FRH in the MRE.

TABLE 11 HEATING MECHANISMS TYPICALLY USED TO HEAT MRE

	<u>Percent</u>
Do Not Heat	43.2%
Flameless Ration Heater	32.4%
Squad Stoves	13.5%
Other: (Exhaust Pipe, Sun)	13.5%
Optimus Stove	2.7%
Heat Tabs	2.7%
Sterno	2.7%

VARIETY MRE

Prior to the study soldiers rated the variety of selected food groups/categories of MRE foods they have consumed in the past. These food groups were rated on the 7-point scale below.

Extremely Too Little Variety	Moderately Too Little Variety	Slightly Too Little Variety	Just Right	Slightly Too Much Variety	Moderately Too Much Variety	Extremely Too Much Variety
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>

Responses from the participants indicated that the variety in each food group of the MRE was "Slightly Too Little". The items that received the highest variety ratings (3.3) were crackers, spreads, and drinks, while the lowest rated items (3.0) were desserts, entrees, cakes, and fruits. Table 12 represents mean variety ratings by food group. When asked "How many menus would you like to see in the MRE", the majority of soldiers concluded they would like to see 25 or more, as shown by the data in Table 13. Soldiers also had suggestions to increase variety within each food group. These recommendations are shown in Table 14.

TABLE 12 MRE VARIETY RATINGS BY FOOD GROUP

<u>Food Group</u>	<u>Mean</u>	<u>SD</u>
Spreads	3.3	1.1
Drinks	3.3	1.1
Crackers	3.3	1.4
Starches	3.2	.9
Candy	3.2	1.2
Cakes	3.0	1.2
Fruits	3.0	1.1
Entree	3.0	1.0
Snacks	3.0	1.0
Desserts	2.8	1.1
Overall MRE	3.0	.9

TABLE 13 RESPONSE "HOW MANY DIFFERENT MENUS WOULD YOU LIKE TO SEE IN THE MRE"?

<u>Number of Menus</u>	<u>Percent</u>
12 or Less	5.4%
13 - 16	8.1%
17 - 20	21.6%
21 - 24	24.3%
25 or More	40.5%

TABLE 14 RECOMMENDATIONS FOR INCREASING MRE VARIETY BY FOOD GROUP

<u>Food Group</u>	<u>Food Group</u>
Entree - More international and ethnic dishes	Drinks - Make bigger, more flavors
Starches - Too much repetition	Candy - More commercial items
Crackers - Bland, add different types	Snacks - Too much repetition
Spreads - More cheese types of spreads	Overall - Add more variety
Desserts/Cakes - Need more variety of cakes, Add more choices	
<u>Fruit - Not enough fresh fruit, more dried fruit, less dehydrated variety</u>	

PORTION SIZE MRE

Participants were asked on the final questionnaire to rate the amount of food received for each MRE item. Respondents used a scale that ranged from 1= Much Too Small to 7= Much Too Large. The mean rating was 4.0 at "Just Right". Table 15 shows these ratings by food item. Participants were also asked if there was enough food in one MRE ration to satisfy their hunger. More than 86% replied yes, there was enough food to satisfy hunger, while only 11% said there was not enough food in one MRE.

TABLE 15 RATINGS OF MRE PORTION SIZE FROM THE FINAL QUESTIONNAIRE

<u>Food Item</u>	<u>Mean</u>	<u>SD</u>
Chewy Brownie	4.2	.8
Oatmeal Cookie Bar	4.2	1.0
Tuna w/ Noodles	4.1	.5
Chocolate Covered Cookie	4.1	.7
Beef Stew	4.1	.7
Chicken Chow Noodles	4.1	.7
Chicken Stew	4.1	.8
Spaghetti w/ Meat Sauce	4.1	.8
Chicken w/Rice	4.1	.9
Pound Cake	4.1	.9
Potato Sticks	4.1	1.0
Pork w/ Rice	4.0	.5
Escalloped Potatoes w/ Ham	4.0	.8
Ham Slices	4.0	.9
Pork Chow Mein	4.0	.9
Chili Macaroni	3.9	.7
Coffee	3.9	1.0
Beverages	3.9	1.1
Smoky Franks	3.8	.9
Tavern Nuts	3.8	1.1
<u>Grilled Chicken</u>	<u>3.6</u>	<u>1.0</u>

RESULTS

SECTION II - HEAT AND SERVE AND EXPRESS MEAL

ACCEPTABILITY

Soldiers rated acceptability of Heat and Serve and Express Meals food items daily using a 9-point hedonic scale, which ranges from 1= Dislike Extremely to 9= Like Extremely. The mean acceptance ratings of each item along with the standard deviation and the number of respondents are listed below. Breakfast meals were supplemented with cold cereal and fruits, while at dinner meals salad, salad dressing and fruits were provided.

BREAKFAST HEAT AND SERVE ITEMS

ENTREES: The soldiers liked all the entrees, as indicated by acceptability ratings above the midpoint of the scale. Scrambled Eggs w/ Bacon was the least acceptable of the entrees, but still had a mean rating above the scale midpoint of 5.0. Pork Sausages and Waffles received the highest ratings (>6.0), "Like Slightly".

TABLE 16 HEAT AND SERVE ENTREE ACCEPTABILITY

	Mean	SD	N
Pork Sausages	6.6	1.4	32
Waffles	6.1	1.8	35
Western, Scrambled Eggs	5.7	2.0	28
Potatoes w/ Bacon	5.4	1.9	32
Creamed Ground Beef	5.4	1.9	26
Corned Beef Hash	5.3	2.4	21
Ham Slices	5.3	1.8	32
Scrambled Eggs w/Bacon	5.0	2.3	28

RANCHERO SAUCE: A paired T-Test was used to compare the mean egg acceptance ratings with and without Ranchero Sauce. The results indicate the mean acceptability of the eggs were enhanced by the use of Ranchero Sauce. Mean acceptability ratings of both egg types were significantly higher when the eggs were served with Ranchero Sauce. See Appendices A and B for menus.

TABLE 17 MEAN EGG ACCEPTABILITY WITH AND WITHOUT RANCHERO SAUCE

	Western Egg	Scrambled Egg
With Ranchero Sauce	6.5	6.5
Without Ranchero Sauce	5.7	5.5

DESSERTS/CAKES: Soldiers rated all of the desserts/cakes favorably. Apple Dessert was the least acceptable with a mean rating of 6.6 or approximately "Like Moderately". The Peach

Slices, Lemon Pound Cake and Fruit Cocktail were among the respondents' highest rated items.

TABLE 18 HEAT AND SERVE DESSERTS/ CAKES ACCEPTABILITY

	Mean	SD	N
Peach Slices	7.6	1.2	18
Lemon Pound Cake	7.5	1.8	25
Fruit Cocktail	7.4	1.1	20
Vanilla Pound Cake	7.3	1.3	22
Pineapple Pound Cake	7.2	1.4	22
Canned Pears	7.2	1.4	21
Orange Pound Cake	7.0	1.5	11
Apple Dessert	6.6	2.0	20

BEVERAGES: All of the beverages were well received by soldiers, as seen with mean ratings above 6.0, "Like Slightly".

TABLE 19 HEAT AND SERVE BEVERAGE ACCEPTABILITY

	Mean	SD	N
Cocoa	7.7	1.0	4*
Coffee	6.8	1.2	11
White Milk, UHT	6.8	1.1	21
Chocolate Milk, UHT	6.6	1.9	25
Orange Juice	6.4	1.5	23
Grape Drink	6.3	1.6	21

CONDIMENTS: It appears the soldiers liked all the condiments that were provided. The favorite among this group was the Jelly with a mean score of 7.4, "Like Moderately". Maple Syrup was voted the least acceptable with a mean rating of 6.0, although still above the mid-point of the scale.

TABLE 20 HEAT AND SERVE CONDIMENT ACCEPTABILITY

	Mean	SD	N
Jelly	7.4	1.3	9
Peanut Butter	7.1	1.5	6
Ranchero Sauce	6.1	2.1	30
Margarine	6.1	1.2	9
Hot Sauce	6.0	1.7	10
Maple Syrup	6.0	1.5	32

* Ratings of items by less than 10 respondents ($n \leq 10$) should not be considered as accurate as ratings by a greater number of respondents.

SUPPLEMENTS: The unit provided soldiers with bread and fresh fruit at hot meals. The acceptability ratings show that soldiers overall liked these items.

TABLE 21 HEAT AND SERVE SUPPLEMENT ACCEPTABILITY

	Mean	SD	N
White Bread	7.0	1.2	33
Wheat Bread	6.5	1.3	30
Bananas	7.7	1.7	8*
Apples	7.5	1.4	10
Pears	7.0	1.6	11
Oranges	6.5	1.9	5

DINNER EXPRESS MEAL ACCEPTABILITY

EXPRESS MEAL ENTREES: The soldiers liked all the entrees, as indicated by acceptability ratings above the midpoint of the scale. Oriental Chicken (FD) was the least acceptable of the entrees, but still had a mean rating above the scale midpoint of 5.0. Noodles and Chicken (FD) and Spaghetti w/ Meat Sauce (FD) received the highest ratings (>7.0), "Like Moderately".

TABLE 22 EXPRESS MEAL ENTREE ACCEPTABILITY

	Mean	SD	N
Noodles and Chicken, FD	7.6	1.4	36
Spaghetti w/ Meat Sauce, FD	7.1	1.6	35
Turkey Tetrazzini, FD	6.8	1.9	36
Beef Teriyaki, FD	6.2	2.5	36
Lasagna, FD	6.1	2.0	34
Chili w/Beans, FD	6.1	1.7	31
Sweet & Sour Pork, FD	5.9	2.4	34
Beef Stroganoff, FD	5.9	2.1	35
Oriental Chicken, FD	5.3	2.4	33

* Ratings of items by less than 10 respondents ($n \leq 10$) should not be considered as accurate as ratings by a greater number of respondents.

HEAT AND SERVE VEGETABLES/ STARCHES: The Sweet Potatoes rated highest at 6.9, while the Mixed Vegetables were least acceptable with a mean rating below the scale mid-point of 5.0.

TABLE 23 HEAT AND SERVE VEGETABLES/ STARCH ACCEPTABILITY

	Mean	SD	N
Sweet Potatoes	6.9	1.8	20
Corn	6.8	1.1	33
Peas	6.1	1.5	22
Green Beans	6.1	1.6	33
Carrots	5.8	2.1	16
Potatoes w/Butter Sauce	5.5	1.0	4*
Hamburger Buns	5.1	1.8	23
Mixed Vegetables	4.1	2.0	27

DESSERTS/ CAKES: The least acceptable dessert item was the Chocolate Cake w/ topping which still had a mean rating above the mid-point of the scale. The highest rated items received scores greater than 7.5, between "Moderately Like" and "Like Very Much": these were the Peach Slices, Fruit Cocktail, and Orange Pound Cake.

TABLE 24 EXPRESS MEAL DESSERT/ CAKE ACCEPTABILITY

	Mean	SD	N
Peach Slices	7.9	1.0	28
Fruit Cocktail	7.8	1.2	10
Orange Pound Cake	7.5	2.2	14
Lemon Pound Cake	7.4	1.5	14
Blueberry Dessert	6.6	2.2	22
Yellow Cake w/ Topping	6.3	2.1	10
Tray Pack Pound Cake	6.1	2.1	30
Marble Cake	6.1	2.2	19
Chocolate Cake w/ Topping	5.9	1.5	20

BEVERAGES: It appears as though the soldiers in this group preferred the Grape Beverage which had a mean score of 7.5. The least acceptable beverage during the dinner meal was the coffee with a mean rating of 6.0, "Like Slightly". The differences in the mean rating (i.e., coffee) at the breakfast meal and dinner meal is presumably due to the preference for certain beverages at specific times of the day rather than a decrease in the overall acceptability of the product.

TABLE 25 EXPRESS MEAL BEVERAGE ACCEPTABILITY

	Mean	SD	N
Grape Beverage	7.5	1.3	4*
Lemon Lime Beverage	7.1	1.6	17
Chocolate Milk	7.1	1.8	23
Cherry Beverage	7.0	1.3	15
Orange Beverage	7.0	.8	4
White Milk	6.9	1.1	18
Coffee	6.0	1.6	6

SUPPLEMENTS: The unit provided soldiers with bread and salad at dinner meals. The acceptability ratings show that soldiers overall liked these items.

TABLE 26 EXPRESS MEAL SUPPLEMENT ACCEPTABILITY

	Mean	SD	N
White Bread	6.8	1.3	31
Wheat Bread	6.5	1.3	36
Salad	6.8	1.3	28

CONDIMENTS: All of the condiments served at the dinner meal seem to be liked by soldiers, as shown below with mean ratings above the mid-point of the scale.

TABLE 27 EXPRESS MEAL CONDIMENT ACCEPTABILITY

	Mean	SD	N
Cheese Spread	7.6	1.2	3
Peanut Butter	7.3	1.6	6
Jelly	7.1	1.6	7
Hot Sauce	6.5	1.0	7
Margarine	5.8	1.3	12

VARIETY

Prior to the study soldiers were asked to rate the variety of Heat and Serve foods they typically eat during field exercises. Food items were rated by food group on a 7-point scale.

Extremely Too Little Variety	Moderately Too Little Variety	Slightly Too Little Variety	Just Right	Slightly Too Much Variety	Moderately Too Much Variety	Extremely Too Much Variety
1	2	3	4	5	6	7

Participants' responses indicate that generally the variety in each food group of the Heat and Serve is "Slightly Too Little". Fruits and vegetables were rated highest (3.5), whereas the breakfast entrees and candy both rated below 3.0. Table 28 shows mean variety by food group. About 32% of soldiers would like to see 6-10 different menus in the breakfast Heat and Serve, while 35% said they would like to see 26 or more for the dinner meal (Table 29). Soldiers indicated several ways variety may be increased, other than adding to the number of menus. These are stated in Table 30 below.

TABLE 28 VARIETY RATINGS BY FOOD GROUP

<u>Food Group</u>	<u>Mean</u>	<u>SD</u>
Fruits	3.5	.9
Vegetables	3.5	.9
Beverages	3.4	.7
Dinner Entree	3.4	.8
Starches	3.3	.9
Cakes	3.1	1.1
Desserts	3.0	1.0
Candy	2.7	1.3
Breakfast Entree	2.5	1.3
Overall		
<u>Heat and Serve</u>	<u>3.1</u>	<u>1.0</u>

TABLE 29 RESPONSE "HOW MANY DIFFERENT MENUS WOULD YOU LIKE TO SEE IN THE HEAT AND SERVE"?

<u>Breakfast</u>		<u>Dinner</u>
<u>Percent</u>		<u>Percent</u>
5.4%	5 or Less	5.4%
32.4%	6 - 10	2.7%
24.3%	11 - 15	29.7%
8.1%	16 - 20	16.2%
8.1%	21 - 25	10.8%
<u>21.6%</u>	<u>26 or More</u>	<u>35.1%</u>

Currently: Breakfast - 10
Dinner - 10

TABLE 30 RECOMMENDATIONS FOR INCREASING VARIETY BY FOOD GROUP

<u>Food Group</u>	<u>Food Group</u>
Breakfast Entree - Add pancakes, waffles, bagels	Beverages - Add iced tea
Dinner Entree - Less can goods, add more	Candy - Add to menu
Vegetables - Less can goods, larger portions	Overall - Look at store goods
Starches - Add french fries, more rice and potatoes	
Cakes - Add different flavors	
Desserts - Add coffee cake and cinnamon rolls	
<u>Fruits - More fresh fruit</u>	

PORTION SIZE

Participants were asked on the final questionnaire to rate the amount of food received for each Heat and Serve item. Respondents used a scale that ranged from 1= Much Too Small to 7= Much Too Large. The average portion size rating was 3.8 or between "Somewhat Too Little and Just Right". These ratings are seen in Table 31, by food item.

TABLE 31 MEAN PORTION SIZE RATINGS HEAT AND SERVE

<u>Food Item</u>	<u>Mean</u>	<u>SD</u>
Potatoes w/ Bacon Pieces	4.0	.6
Creamed Ground Beef	4.0	.8
Apple Dessert	3.9	.5
Maple Syrup	3.9	.6
Ranchero Sauce	3.9	.7
Cheese Spread	3.9	.8
Pork Sausage Links	3.9	.8
Beef Stroganoff	3.9	.9
Hearty Beef Stew	3.8	.5
Corned Beef Hash	3.8	.6
Oriental Chicken	3.8	.7
Chili Sauce w/Beans	3.8	.7
Eggs	3.8	.8
Turkey Tetrazzini	3.8	.8
Cakes	3.8	.8
Waffles	3.8	.8
Noodles and Chicken	3.8	.8
Lasagna w/ Meat Sauce	3.8	.8
Sweet and Sour Pork	3.8	1.0
Spaghetti w/ Meat Sauce	3.7	.6
Beef Teriyaki	3.7	.7
Vegetables	3.6	.8
White Rice	3.6	.8
Overall Heat and Serve / Express	3.9	.6

RESULTS

SECTION III - NUTRITIONAL LABELING OF THE MRE

BACKGROUND INFORMATION

The majority of soldiers consciously think about food choices when eating the MRE (79%), Heat & Serve (58%), and while in garrison (66%) and would prefer nutritional information included with the MRE (84%) and the Heat & Serve Ration (83%). The most common source from which the soldier receives nutritional information is the nutrient label from food products (21 of 38 soldiers), with television (18) and magazines (17) being the most common other sources.

MIDPOINT ASSESSMENT

At the midpoint assessment 94% of the soldiers reported seeing the nutrition labels, with 74% indicating that they had read the labels. The percentage reporting they had read the label

increased to 83% by the end of the field test.

At the study midpoint those soldiers who had read the nutrition facts labels found them moderately easy to understand (5.8 on a 7 point scale) and between moderately and very informative (2.8 on a 4 point scale). Approximately half (58%) reported using the information and 24% reported that the label was associated with unspecified changes in their MRE eating behavior. Fat and calorie content of MRE items was reported as the information soldiers most often found useful. Soldiers' overall liking of the label was high (6.9 on the 9-point hedonic scale).

TABLE 32 MIDPOINT FINDINGS FOR SOLDIERS READING NUTRITION LABELS

QUESTION	RESULT	SCALE
Ease of Understanding Nutrition Label	5.8	1 = Extremely Difficult 7 = Extremely Easy
How informative was the Label	2.8	0 = Not at all 4 = Extremely
How much like/dislike the Label	6.9	1 = Dislike Extremely 9 = Like Extremely
Did you use the information	56.0%	% Yes
Did any of the following occur:		
Ate different items or amounts of MRE	24.0%	% Yes
Ate same items or amounts of MRE	76.0%	% Yes

FINAL QUESTIONNAIRE

The current findings support past data indicating most soldiers are interested in nutritional information. The majority of the soldiers (80%) read the MRE nutritional labels and not only found the label relatively easy to understand and informative, nearly all (97%) indicated they understood the label. The percentage of soldiers who read the label increased from the middle (73%) to the end of the study (83%) and overall liking for the label remained high. Interestingly, the soldiers' reports the label's impact on eating behavior and understanding of the label (mid=5.8, final=5.3) and how informative it is (mid=3.7, final=2.5), show modest, yet statistically significant declines. These changes may reflect soldiers increased recognition of the complexity of nutrition. In addition, as soldiers learn more about this subject, labels will inherently prove less informative since information will no longer be new. As seen in Table 33, questions asked both before and after the 10-day test did show modest fluctuation. Confidence in nutrition knowledge had a significant decrease, paralleling findings reported above for understanding of the nutrition label. Again, we can hypothesize that this result reflects soldiers learning that the knowledge they believed they had

did not match what they learned during this test.

TABLE 33 BACKGROUND VS FINAL QUESTIONNAIRE - NUTRITION

	Background	Final	
How confident in Nutrition Knowledge	2.0	1.8 (sig lower)	scale: 1-5
Define fortified food (% correct)	44.7	57.9	
Calories in one MRE	1366	1597	
% 1000 to 1500	40.0	55.6	
MAX RDA for Sat. Fat.	23.2	30.5	
% correct (10% fat)	37.8	24.3	
Want nutrition information			
included in Rations	MRE	84.2	86.1
	H&S	83.3	77.1
How healthy is MRE	1.7	1.6	scale: 1= not at all,
Nut Label Quiz			5= extremely
(exceed sat fat level) % Correct	59.5	40.5	

NUTRITIONAL INSERT

Seventy-five percent of soldiers completing this section reported reading the insert, with the majority finding it readily understandable and informative (Table 34). Two-thirds of the soldiers believed it helped them to better understand or use the nutrition labels. Soldiers were approximately equally split in terms of liking the insert, with 46.2% rating it neutrally and the same percentage rating it positively. Very few (7.6%) reported any degree of dislike for the insert and over 80% felt inserts should be included in the MRE. The two aspects of the inserts most frequently commented on as helpful were the total calories per MRE meal and the grid showing vitamin and mineral fortification. A few soldiers commented negatively on the soldier graphic, suggesting that it was too "goofy" in appearance.

TABLE 34 FINAL QUESTIONNAIRE - PEOPLE WHO READ INSERT

QUESTION	RESULT	SCALE
Read the Insert	75.0%	% Yes
Was Insert Information Helpful	81.5%	% Yes
Helped to Understand Label	66.7%	% Yes
Include Insert	81.5%	% Yes
Ease of Understanding the Insert	5.3	1 = Extremely Difficult 7 = Extremely Easy
How Informative was the Insert	2.3	0 = Not at all 4 = Extremely
How much like/dislike Insert	5.9	1 = Dislike Extremely 9 = Like Extremely

CONCLUSIONS

- All Heat and Serve and Express Meal breakfast and dinner entrees received acceptability ratings above the mid-point of the scale (5.0). Situational factors need to be considered when reviewing these acceptability ratings. These entrees were not served at remote feeding sites, they were served at the Mobile Kitchen Trailer (MKT) in long serving trays over M2 Burners. The food remained hot during the complete meal and proper preparation tools and cooking utensils were available. The Express Entrees, like other types of ration entrees, would be expected to be less acceptable when conditions and food temperature are less optimal. It is recommended that before these newly evaluated food items are incorporated into the ration, they be evaluated in other common field situations, such as remote site feeding, to ensure acceptability under a wider range of common field conditions.
- The acceptability rating of the egg products was significantly higher when served with Ranchero Sauce. It is recommended that Ranchero Sauce be served with egg products to increase acceptability and consumption.
- Food service found these meals to be readily preparable but overall expressed no clearcut preference for Express Entrees versus standard Heat and Serve entrees in terms of either ease of preparation or cleanup.
- Just as individual dehydrated entrees have an important, if limited, role in the total package of individual rations, it is clear that the Express Entrees could have a place in feeding groups of soldiers. The most apparent possibility for incorporating this type of entree into the system lies in B Rations (e.g., UGR B) and potentially as a portion of prepositioned war reserves.
- The nutrient label on the MRE food items were beneficial to the soldier. The label is the most common source for the soldier to find nutritional information and the majority consciously think about food choices in and out of the field. The nutritional label will also benefit soldiers with restricted diets due to religious reasons or food allergies.
- The data suggest the informational insert was helpful to the soldiers. Explanation of the calories per meal and the vitamin and mineral fortification grid were the most helpful. Soldiers would like this insert to vary over time and possibly throughout the case of rations to keep their interest.
- Based on this field evaluation, soldiers found all the MRE food items acceptable. Soldiers continue to ask for greater variety. Given the increased number of entrees; these data suggest that future focus on increasing the variety in other food groups, such as starches, and desserts. In general, the entree was heated, and soldiers found the heater a positive addition to the ration. The portion sizes of most food items were acceptable, but the portion size of some food items, such as Smoky Franks, Tavern Nuts and Grilled Chicken, may need to be increased.

APPENDIX A
MRE MENUS

APPENDIX A

MEAL, READY -to- EAT, INDIVIDUAL (MENUS MRE XV)

MENU 1

Pork w/ Rice in BBQ Sauce
Applesauce¹
* Tavern Nuts
Peanut Butter
Beverage Base
Packet A

MENU 2

* Chili w/ Macaroni
Fruit²
Oatmeal Cookie Bar
Jelly
Beverage Base
Packet B

MENU 3

Chicken Stew
* Fruit³
Pound Cake
Jelly
Cocoa
Sugar Free Beverage
Packet A

MENU 4

* Grilled Chicken
Potato Au Gratin
Pound Cake
Peanut Butter
Cocoa
Sugar Free Beverage
Packet B

MENU 5

Spaghetti w/ Meat Sauce
Oatmeal Cookie Bar
Jelly
Candy⁴
Cocoa
Sugar Free Beverage
Packet A

MENU 6

Smoky Franks
Fruits³
Potato Sticks
Peanut Butter
Candy⁴
Cocoa
Sugar Free Beverage
Packet A

MENU 7

Beef Stew
Cookie, Chocolate Covered
Cheese Spread
Candy⁴
Cocoa
Sugar Free Beverage
Packet A

MENU 8

Ham Slice
Potato Au Gratin
Pound Cake
Cheese Spread
Cocoa
Sugar Free Beverage
Packet A

* Denotes new menu item

MEAL, READY -to- EAT, INDIVIDUAL (MENUS MRE XV)

MENU 9

Pork Chow Mein
Chow Mein Noodles
Cookie, Chocolate Covered
Peanut Butter
Candy⁴
Beverage Base
Packet A

MENU 10

Tuna w/ Noodles
Fruit²
Pound Cake
Cheese Spread
Candy⁴
Beverage Base
Packet A

MENU 11

Chicken w/ Rice
Fudge Brownie
Cheese Spread
Candy⁴
Beverage Base
Packet A

MENU 12

Escalloped Potatoes w/ Ham
Applesauce¹
* Fudge Brownie
Cheese Spread
Cocoa
Sugar Free Beverage
Packet A

Each Menu Contains Crackers, Hot Sauce, Flameless Ration Heater and Spoon.

Accessory Packet A: Coffee, Creamer Substitute, Sugar, Salt, Chewing Gum, Matches, Toilet Tissue, Towelette

Accessory Packet B: Coffee, Creamer Substitute, Sugar, Salt, Chewing Gum, Matches, Toilet Tissue, Towelette, Candy

¹Thermostabilized

²Freeze-Dried Fruit: Peaches, Pears, Fruit Mix, or Strawberries (A minimum of 2 kinds must be used),

³Thermostabilized Peaches, Pears, Pineapple, or Mixed Fruit

⁴Charms or Heat Stable M&M's

APPENDIX B
HEAT AND SERVE MENUS
AND EXPRESS MENUS

APPENDIX B

Heat and Serve Menu

BREAKFAST

DAY 1

* Scrambled Egg, Western (OFD)
* Ranchero Sauce
Potatoes w/Bacon Pieces
Oatmeal, Asst.
Peaches
Cold Cereal
Orange Juice, Instant
Bread/Milk
Coffee/Cocoa
Apple/Pear (Fresh Fruit)

DAY 2

Beef, Creamed, Ground
Potatoes w/Bacon Pieces
Oatmeal, Asst.
Lemon Pound Cake
Cold Cereal
Grape Juice, Instant
Bread/Milk
Coffee/Cocoa
Apple (Fresh Fruit)

DAY 3

* Waffles, Plain
Maple Syrup
Ham Slices
Apple Dessert
Pineapple Pound Cake
Cold Cereal
Oatmeal, Apple Cinnamon
Orange Juice, Instant
Bread/Milk
Coffee/Cocoa
Apple (Fresh Fruit)

Express Menu

DINNER

DAY 1

* Noodles & Chicken (FD/PZ)
Corn
Orange Pound Cake
Lemon Lime Beverage
Salad
Salad Dressing
Bread/Milk
Coffee

DAY 2

* Lasagna w/Meat Sauce (FD/PZ)
Carrots
Peaches
Cherry Beverage
Salad
Salad Dressing
Bread/Milk
Coffee
Apple (Fresh Fruit)

DAY 3

* Beef Stroganoff (FD/PZ)
Mixed Vegetables
Chocolate Cake w/Topping
Cherry Beverage
Salad
Salad Dressing
Bread/Milk
Coffee

* Denotes new menu item

Heat and Serve Menu

BREAKFAST

DAY 4

* Scrambled Egg w/Bacon
Pork Sausage Links
Pears
Pound Cake
Cold Cereal
Grape Juice, Instant
Bread/Milk
Coffee/Cocoa

DAY 5

Corned Beef Hash
Ham Slices
Apple Dessert
Oatmeal, Maple & Brown Sugar
Pineapple Pound Cake
Cold Cereal
Orange Juice, Instant
Bread/Milk
Coffee/Cocoa

DAY 6

Waffles, Plain
Maple Syrup
Pork Sausage Links
Peaches
Lemon Pound Cake
Oatmeal, Maple & Brown Sugar
Grape Juice, Instant
Bread/Milk
Coffee/Cocoa
Oranges (Fresh Fruit)

Express Menu

DINNER

DAY 4

* Sweet & Sour Pork (FD/PZ)
Hamburger Buns
Peas
Peaches
Yellow Cake w/ Topping
Grape & Cherry Beverage
Salad/Salad Dressing
Bread/Milk
Coffee

DAY 5

* Beef Teriyaki (FD/PZ)
Green Beans
Chocolate Cake w/ Topping
Orange & Cherry Beverage
Salad/Salad Dressing
Bread/Milk
Coffee

DAY 6

* Oriental Chicken (FD/CN)
Green Beans
Lemon Pound Cake
Cherry Beverage
Salad/Salad Dressing
Bread/Milk
Coffee

Heat and Serve Menu

BREAKFAST

DAY 7

* Scrambled Eggs, Western
Ham Slices
Fruit Cocktail
Pineapple Pound Cake
Orange Juice, Instant
Bread/Milk
Coffee/Cocoa
Oranges (Fresh Fruit)

DAY 8

Beef, Creamed, Ground
Potatoes w/ Bacon Pieces
Vanilla Pound Cake
Oatmeal, Raisin & Spice, Maple & BS
Fruit Cocktail
Bread/Milk
Coffee/Cocoa
Oranges (Fresh Fruit)

DAY 9

* Scrambled Eggs, Bacon
Ranchero Sauce
Ham Slices
Oatmeal, Apple Cinn., Maple & BS
Pears
Bread/Milk
Coffee/Cocoa

Express Menu

DINNER

DAY 7

* Chili Sauce w/Beans (FD/CN)
Hamburger Buns
Cheese Spread
Fruit Cocktail
Salad/Salad Dressing
Cherry Beverage
Bread/Milk
Coffee/Cocoa

DAY 8

* Spaghetti w/ Meat Sauce (FD/CN)
Corn
Cake w/Topping
Salad/Salad Dressing
Lemonade
Cherry Beverage
Bread/Milk
Coffee

DAY 9

* Turkey Tetrazini
Mixed Vegetables
Potatoes w/Bacon Pieces
Yellow Cake w/Topping
Blueberry Dessert
Cherry Beverage
Bread/Milk
Coffee

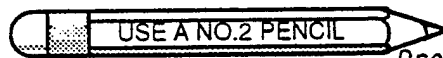
APPENDIX C
BACKGROUND QUESTIONNAIRE

BACKGROUND QUESTIONNAIRE

Your Initials: _____

ID: _____

Please read each question carefully. Mark your answers by filling in the circle(s) next to the correct answer.



Proper Mark



1. Your rank:

	1	2	3	4	5	6	7	8	9
E	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
O	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
W	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. What is your gender?

☐ Male
☐ Female

3. Have you been deployed? ☐ YES ☐ NO
IF YES, Please fill in the circles(s) for your deployments.

<input type="checkbox"/> Saudi Arabia	<input type="checkbox"/> Vietnam
<input type="checkbox"/> Somalia	<input type="checkbox"/> Macedonia
<input type="checkbox"/> Grenada	<input type="checkbox"/> Sinai
<input type="checkbox"/> Panama	<input type="checkbox"/> Bosnia
<input type="checkbox"/> Haiti	<input type="checkbox"/> Other _____

4. How long have you been in the armed services?
_____ Years _____ Months

5. What is your age? _____ years

6. What is the highest level of education you have completed?

☐ Finished grade school
☐ Some high school
☐ High school graduate or grad equivalent
☐ Some college
☐ College graduate

7. What is your ethnic background?

☐ White
☐ Black
☐ Hispanic
☐ Asian/Pacific Islander
☐ American Indian/ Alaskan Native
☐ Other (please specify) _____

8. In what part of the country have you lived the longest? (fill in appropriate circle)

☐ New England (ME, NH, VT, MA, CT, RI)
☐ Middle Atlantic (NJ, NY, PA)
☐ South Atlantic (DE, MD, VA, WV, NC, SC, GA, FL, DC)
☐ North Central (OH, IN, IL, MI, WI, MN, IA, MO, ND, SD, NE, KS)
☐ South Central (KY, TN, AL, MS, AR, LA, OK, TX)
☐ Mountain (ID, WY, CO, MT, AZ, NM, UT, NV)
☐ Pacific (WA, OR, CA, AK, HI)
☐ Other (please specify) _____

DO NOT WRITE BELOW THIS LINE

GRP

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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ID

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0	1	2	3	4	5	6	7	8	9

Q4

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0	1	2	3	4	5	6	7	8	9

Q3

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0	1	2	3	4	5	6	7	8	9

Q5

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Q7

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0	1	2	3	4	5	6	7	8	9

Q8

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Please answer the following questions on the MRE you typically eat during field exercises.

9. Please rate the variety of the food groups listed below for the MRE.

	Extremely Too Little Variety 1	Moderately Too Little Variety 2	Slightly Too Little Variety 3		Just Right 4		Slightly Too Much Variety 5	Moderately Too Much Variety 6	Extremely Too Much Variety 7	
	1	2	3	4	5	6	7	IF TOO LITTLE (ratings of 1, 2, or 3) please explain how to increase variety		
Entree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>		
Starches	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>		
Crackers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>		
Spreads	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>		
Desserts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>		
Cakes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>		
Fruits	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>		
Snacks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>		
Drinks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>		
Candy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>		
Overall MRE	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>		

10. How many different menus would you like to see in the MRE? Please choose one.

- ☐ 12 or less
- ☐ 13-16
- ☐ 17-20
- ☐ 21-24
- ☐ 25 or more

11. Would you like any food items dropped from the MRE? ☐ YES ☐ NO

IF YES, what food items would you like dropped from the MRE? Please list below.

12. Please list food items you would like added to the MRE in the following categories. Please be realistic.

Entrees
Crackers
Spreads
Seasonings
Snacks
Fruit
Candy
Beverages
Other

13. Have you ever used the Hot Sauce/Tabasco Sauce included in the MRE? ☐ YES ☐ NO

IF YES, how often?

- ☐ Never
- ☐ Occasionally
- ☐ Sometimes
- ☐ Often
- ☐ Always

14. Typically, how often do you use/consume the following items that are included in the MRE.

Never 0	Sometimes 1	Often 2	Always 3	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Salt
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Sugar
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Creamer
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Gum
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Hot Sauce
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Coffee
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Beverage Powder
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Cracker
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Cheese Spread
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Jelly
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Peanut Butter

Please answer the following questions on the Tray Ration/Heat & Serve you typically eat during field exercises.

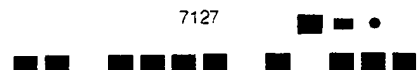
15. Please rate the variety of the food items in the Tray Ration/Heat & Serve.

Extremely Too Little Variety 1	Moderately Too Little Variety 2	Slightly Too Little Variety 3	Just Right 4	Slightly Too Much Variety 5	Moderately Too Much Variety 6	Extremely Too Much Variety 7
---	--	--	--------------------	--------------------------------------	--	---------------------------------------

	1	2	3	4	5	6	7	IF TOO LITTLE (ratings of 1, 2, or 3) please explain how to increase variety
Breakfast Entree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Dinner Entree	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Vegetables	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Starches	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Cakes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Desserts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Fruits	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Beverages	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Candy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
Overall T-Ration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

16. How many different menus would you like to see in the Tray Ration/Heat & Serve? Please choose one for each meal.

Breakfast		Dinner
<input type="radio"/>	5 or less	<input type="radio"/>
<input type="radio"/>	6 - 10	<input type="radio"/>
<input type="radio"/>	11 - 15	<input type="radio"/>
<input type="radio"/>	16 - 20	<input type="radio"/>
<input type="radio"/>	21 - 25	<input type="radio"/>
<input type="radio"/>	26 or more	<input type="radio"/>



17. Are there any food items you would like dropped from the Tray Ration/Heat & Serve ration? ○

☐ YES ☐ NO

IF YES, what food items would you like dropped from the Tray Ration/Heat & Serve ration? Please list below.

18. Please list food items you would like to see added to the Tray Ration/Heat & Serve ration in the following categories. Please be realistic.

Breakfast Entrees
Dinner Entrees
Vegetables
Fruits
Spreads
Seasonings
Snacks
Candy
Beverages
Other

19. How often do you use/consume the following items that are included in the Heat & Serv ration.

Never 0 Sometimes 1 Often 2 Always 3

0	1	2	3	Salt
○	○	○	○	Sugar
○	○	○	○	Creamer
○	○	○	○	Peanut Butter
○	○	○	○	Jelly
○	○	○	○	Hot Sauce
○	○	○	○	Coffee
○	○	○	○	Fruit Drink

OVERALL

20. During a typical field exercise, what types of rations do you usually eat for the meals indicated below?

A		T
RATION	MRE	RATION
○	○	○
○	○	○
○	○	○
		Breakfast
		Lunch
		Dinner

21. Typically, during active conflict or a goodwill mission, what type of rations do you eat for the meals indicated below?

A		T
RATION	MRE	RATION
○	○	○
○	○	○
○	○	○
		Breakfast
		Lunch
		Dinner

22. How do you typically heat your MRE entree? Choose all that apply.

☐ Do Not Heat

☐ Flameless Ration Heater

☐ Sterno

☐ Squad Stoves

☐ Other _____

☐ Heat Tabs

☐ Optimus Stove

☐ Field Kitchen

23. Please rate how much you Dislike/Like the overall MRE.

DISLIKE EXTREMELY	DISLIKE VERY MUCH	DISLIKE MODERATELY	DISLIKE SLIGHTLY	NEITHER LIKE NOR DISLIKE	LIKE SLIGHTLY	LIKE MODERATELY	LIKE VERY MUCH	LIKE EXTREMELY
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

24. Please rate how much you Dislike/Like the overall Tray Ration/Heat & Serve ration.

DISLIKE EXTREMELY	DISLIKE VERY MUCH	DISLIKE MODERATELY	DISLIKE SLIGHTLY	NEITHER LIKE NOR DISLIKE	LIKE SLIGHTLY	LIKE MODERATELY	LIKE VERY MUCH	LIKE EXTREMELY
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Nutrition Information Section

25. When choosing food to eat, do you typically:
(Choose only one)

- ☐ Eat what you like
☐ Eat what is good for you
☐ Eat what is available
☐ Other: _____

26. Do you consciously think about the food choices you make when you are in the field eating the following rations?

YES	NO
<input type="radio"/>	<input type="radio"/>
MRE	
<input type="radio"/>	<input type="radio"/>
Tray Ration/Heat & Serve	

27. Do you consciously think about food choices when you are NOT in the field? ☐ YES ☐ NO

28. How often do you read the nutritional labels on commercial food items.

Never	Occasionally	Sometimes	Often	Always
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

29. How confident are you in your knowledge of nutrition?

Not At All	Slightly	Moderately	Very	Extremely
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

30. Where do you get your nutritional information? Choose all that apply

☐ Magazines

☐ Newspapers

☐ Television

☐ Family/Friends

☐ Health Profession

☐ Books/School

☐ SGT/Military Leader

☐ Nutrient Labels

☐ Other _____

31. In terms of nutritional content, please rate the **IMPORTANCE** of the following nutrients when choosing which foods to eat

Not At All 0 Slightly Important 1 Moderately Important 2 3 4 Very Important 3 Extremely Important 4

0	1	2	3	4	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Calories
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Protein
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Fat
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Carbohydrate
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Cholesterol
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Sodium
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Iron
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Fiber
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Calcium
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Vitamin C
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Vitamin A
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	B Vitamins

Using the same scale as above, rate the **IMPORTANCE** of each of the following attributes when choosing which foods to eat.

0	1	2	3	4	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Taste
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Texture
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Price
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Brand
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Nutritional content
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Availability
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Habit
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Time of Day
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Family
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Odor
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Appearance
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	How Filling

32. Using the scale below, rate the amount of the listed nutrients you believe are in one MRE ration and one Tray Ration meal/Heat & Serve meal.

MRE						TRAY RATION				
1	2	3	4	5		1	2	3	4	5
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Calories	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Protein	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Fat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Carbohydrate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Cholesterol	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Sodium	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Iron	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Fiber	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Calcium	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Vitamin C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Vitamin A	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	B Vitamins	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

33. Which of the statements best defines fortified foods? Choose only one.

- ☐ a food which contains a natural supply of vitamins and minerals
☐ a food to which vitamins and minerals have been added
☐ a food which contains enough vitamins and minerals to meet the daily requirements
☐ a food which nonessential food components have been removed

34. How many calories do you think are in:

One single MRE ration (complete meal) _____ calories

One single Tray Ration meal _____ calories

35. How many calories PER DAY do you believe are necessary in the following situations?

_____ in garrison
_____ in the field
_____ in the desert
_____ in extreme cold weather
_____ combat
_____ while on vacation

36. What is the maximum total daily calories that should be provided by fats.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

37. What is the maximum total daily calories that should be provided by SATURATED fats.

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

38. What is the maximum amount of cholesterol that should be consumed daily?

0mg 150mg 300 mg 450 mg 600 mg 750 mg 900 mg
☐ ☐ ☐ ☐ ☐ ☐ ☐

39. Identify the best source of Iron.

☐ 2% Milk ☐ Hamburger
☐ Apple ☐ Lettuce

40. Fats, carbohydrates, and protein together account for 100% of the calories in the MRE. What percentage do you think each nutrient contributes to the total number of calories in the MRE.

%	0	10	20	30	40	50	60	70	80	90	100
Fat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Carbohydrates	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Protein	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The sum of the three numbers should equal 100%

41. Would you like nutrient information available for the:

YES NO

☐
☐☐
☐

MRE

Tray Ration/Heat & Serve

42. Please fill in the appropriate bubble for each statement below. (N/A = Not Applicable)

N/A	YES	NO	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	I avoid certain foods due to religious, health, or medical reasons.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	I restrict, control or limit certain foods that my family eats.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	I eat certain foods due to religious, health, or medical reasons.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	I follow the same basic diet that I grew up with.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	I have an adequate understanding of nutrition.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	I typically eat snacks between meals.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	I am a vegetarian.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	I prepare the meals for my household/self.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	I purchase the food for my household/self.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	My food shopping habits have changed within the last year.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	My eating habits have changed within the last year.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	I live alone.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	I have eaten more than 25 MRE's.
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Foods that I eat affect my overall daily performance.

43. What type of beverages do you typically drink on a daily basis? (Other than beer!)

44. Are you trying to gain or lose weight? ☐ Gain ☐ Lose ☐ Stay The Same

45. During a typical work week where do you usually eat the following meals?

	In the Office	At Home	In Dining Facility	Resturant	Fast Food Resturant	Other
Breakfast	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lunch	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dinner	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

46. Please answer the following questions regarding the different food types below. Please indicate if you have ever eaten any of the following by filling in YES or NO.

YES

NO

☐
☐
☐☐
☐
☐

Freeze Dried Foods

Dehydrated Foods

Frozen Foods

YES

NO

☐
☐☐
☐

Canned Foods

Instant Foods

47. How much you liked the item(s) below. If you have not tried an item, tell me how much you think you would like the item. Each item below will have an acceptability rating.

DISLIKE EXTREMELY	DISLIKE VERY MUCH	DISLIKE MODERATELY	DISLIKE SLIGHTLY	NEITHER LIKE NOR DISLIKE	LIKE SLIGHTLY	LIKE MODERATELY	LIKE VERY MUCH	LIKE EXTREMELY
1	2	3	4	5	6	7	8	9

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Freeze Dried Foods
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Dehydrated Foods
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Canned Foods
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Instant Foods
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Frozen Foods

48. How healthful do you believe the MRE is for you?

Not At All

☐

Slightly

☐

Moderately

☐

Very

☐

Extremely

☐

49. The nutrition label describes the nutrition information for a loaf of bread. If you ate the entire loaf, would you exceed the maximum recommended daily intake of saturated fat based on a 2,500 calorie/day diet?

☐ YES
☐ NO

Nutrition Facts			
Serving Size 28g			
Servings per container 20			
Amount per serving 1 Slice			
Calories 80			
Calories from fat 9			
		% Daily Value*	
Total fat 1g		2%	
Saturated fat 1g		3%	
Cholesterol 0mg		0%	
Sodium 200mg		8%	
Total carbohydrate 13g		9%	
Dietary fiber 1g		6%	
Sugars 1g			
Protein 3g			
Vitamin A 0%		Vitamin C 0%	
Calcium 15%		Iron 10%	
* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower based on your calorie needs:			
	Calories:	2,000	2,500
Total fat	Less than	65g	80g
Sat fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2400mg	2400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g
Calories per gram:			
Fat 9	Carbohydrate 4	Protein 4	

APPENDIX D
BODY WEIGHT CHECKLIST

DAY
GROUP

DAY GROUP	WEIGHT	BOOTS	SOCKS	BDU		UNDERWEAR	BELT	LONGJOHN TOP/BOTTOM	FIELD JACKET AND/OR LINER	SLEEP SHIRT	OTHER
				TOP	BOT- TOM						
		CORCORAN JUNGLE COMBAT	___ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	___ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	___ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	___ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	___ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	___ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	___ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	___ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	___ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	
		CORCORAN JUNGLE COMBAT	___ PAIRS WOOL SPORT	HOT COLD NONE	HOT COLD NONE	T-SHIRT Y N SHORTS Y N	YES NO	TOP BOTTOM NONE	JACKET Y N LINER Y N	YES NO	

APPENDIX E
MRE ACCEPTABILITY

MRE INTAKE RECORD

TIME EATEN

ID: _____
DATE/DAY: _____1. Use the scale below to rate your hunger BEFORE this meal. (circle one)NOT AT ALL
HUNGRYSOMEWHAT
HUNGRYMODERATELY
HUNGRYVERY
HUNGRYEXTREMELY
HUNGRY

2. Please fill in the following information for the foods you ate at this MRE meal.

FOOD TYPE	CODE	FOOD ITEM	AMOUNT EATEN	DISLIKE EXTREMELY	DISLIKE VERY MUCH	DISLIKE MODERATELY	DISLIKE SLIGHTLY	NEITHER LIKE/DISLIKE	LIKE SLIGHTLY	LIKE MODERATELY	LIKE VERY MUCH	LIKE EXTREMELY	DID YOU HEAT THE ITEM ?	DID NOT LIKE NOT HUNGRY	TRADED/ GAVE AWAY	OTHER		
ENTREES	01	Pork w/Rice	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	02	Chili Macaroni	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	03	Chicken Stew	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	04	Grilled Chicken	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	05	Spaghetti w/Meat Sauce	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	06	Smoky Franks	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	07	Beef Stew	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	08	Ham Slices	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	09	Pork Chow Mein	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	10	Tuna w/Noodles	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	11	Chicken w/Rice	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	12	Esc. Potatoes w/Ham	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
STARCHES	20	Chow Mein Noodles	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	21	Potato Au Gratin	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	22	MRE Cracker	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
SPREADS	30	Cheese Spread	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	31	Jelly	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	32	Peanut Butter	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
SNACKS	40	Tavern Nuts	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	41	Oatmeal Cookie Bar	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	42	Potato Stick	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	43	Chocolate Covered Cookie	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	44	Pound Cake _____	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	45	Chewy Brownie	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
FRUIT	50	Wet Pack Fruit _____	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	51	Freeze Dried Fruit _____	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	52	Applesauce	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
DRINKS	60	Lemon Tea	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	61	Beverage w/Sugar _____	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	62	Sugar Free Beverage _____	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	63	Coffee	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	63	Cocoa	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	CANDY	70	Charms	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C
71		M&M's	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
72		Chocolate Bar	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
73		Vanilla Caramels	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
74		Tootsie Rolls	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
ACCESSORY PACKET ITEMS		80	Salt	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C
	81	Cream	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	82	Sugar	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	83	Gum	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D
	84	Tabasco Sauce	0 1/4 1/2 3/4 1 or ____	1	2	3	4	5	6	7	8	9	YES	NO	A	B	C	D

** OVERALL MEAL

1 2 3 4 5 6 7 8 9

(OVER)

3. Rate the amount of food you received in this MRE meal. (circle one)

MUCH TOO LITTLE MODERATELY TOO LITTLE SOMEWHAT TOO LITTLE JUST RIGHT SOMEWHAT TOO MUCH MODERATELY TOO MUCH MUCH TOO MUCH

4. Rate the temperature of your MRE entree after heating. (circle one)

MUCH TOO COLD MODERATELY TOO COLD SOMEWHAT TOO COLD JUST RIGHT SOMEWHAT TOO HOT MODERATELY TOO HOT MUCH TOO HOT

5. Rate your hunger AFTER this meal. (circle one)

NOT AT ALL HUNGRY SOMEWHAT HUNGRY MODERATELY HUNGRY VERY HUNGRY EXTREMELY HUNGRY

6. Please estimate the amount of water you drank or added to your MRE food or beverages during each time period listed below. If you drank more than 2 quarts of water during any one period, write in the total amount on the line provided.

<u>Time Periods</u>	<u>Amount of water (QUARTS)</u>									
WITH YOUR MRE	0	1/4	1/2	3/4	1	1 1/4	1 1/2	1 3/4	2	MORE THAN 2 _____
BETWEEN BREAKFAST AND LUNCH	0	1/4	1/2	3/4	1	1 1/4	1 1/2	1 3/4	2	MORE THAN 2 _____
BETWEEN LUNCH AND DINNER	0	1/4	1/2	3/4	1	1 1/4	1 1/2	1 3/4	2	MORE THAN 2 _____
BETWEEN DINNER AND BREAKFAST	0	1/4	1/2	3/4	1	1 1/4	1 1/2	1 3/4	2	MORE THAN 2 _____

7. Please list any non-MRE and non-Heat & Serve food items you ate today.

FOOD	AMOUNT	TIME
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

APPENDIX F
BREAKFAST AND DINNER ACCEPTABILITY FORMS

ID _____
 Name _____
 Day/Date _____

BREAKFAST ACCEPTABILITY



Please use the following scale to
 rate the food you ate at this meal.

DID NOT EAT	DISLIKE EXTREMELY	DISLIKE VERY MUCH	DISLIKE MODERATELY	DISLIKE SLIGHTLY	NEITHER LIKE NOR DISLIKE	LIKE SLIGHTLY	LIKE MODERATELY	LIKE VERY MUCH	LIKE EXTREMELY
0	1	2	3	4	5	6	7	8	9

Breakfast Items	0	1	2	3	4	5	6	7	8	9
Creamed Ground Beef	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Potatoes w/Bacon Pieces	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other: _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fruit/Cake	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Orange Pound Cake	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other: _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Oatmeal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kind: _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fresh Fruit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Apple	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Orange	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Banana	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cereal	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Kind: _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bread	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wheat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
White	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rye	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Beverages	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Orange Juice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Grape Juice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coffee	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cocoa	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
White Milk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Chocolate Milk	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Condiments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Peanut Butter	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jelly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hot Sauce	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
_____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
_____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

DO NOT WRITE BELOW LINE

Group	E	C	T	DAY	1	2	3	4	5	6	7	8	9	10	ID	0	1	2	3	4	5	6	7	8	9	CEREAL	0	1	2	3	4	5	6	7	8	9

0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	OATMEAL	0	1	2	3	4	5	6	7	8	9

Name: _____

ID: _____

Date: _____

Dinner Acceptability

Please use the following scale to indicate your like or dislike of each of the T Ration items you ate at this meal.

DID NOT EAT 0	DISLIKE EXTREMELY 1	DISLIKE VERY MUCH 2	DISLIKE MODERATELY 3	DISLIKE SLIGHTLY 4	NEITHER LIKE NOR DISLIKE 5	LIKE SLIGHTLY 6	LIKE MODERATELY 7	LIKE VERY MUCH 8	LIKE EXTREMELY 9					
ENTREE					0	1	2	3	4	5	6	7	8	9
Beef Terriyaki					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Green Beans					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other: _____					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other: _____					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
DESSERT														
Chocolate Cake w/Topping					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other: _____					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
SALAD														
Salad					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Salad Dressing _____					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
FRESH FRUIT														
Apple					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Orange					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pear					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Banana					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
BREAD														
White					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Wheat					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
BEVERAGES														
Cherry Beverage					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coffee					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cocoa					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
White Milk					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Chocolate Milk					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
CONDIMENTS														
Peanut Butter					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Jelly					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hot Sauce					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Other: _____					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
OTHER														
_____					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
_____					<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Group	E C T	Day	ID	Salad Dressing
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	1 2 3 4 5 6 7 8 9 10	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9
	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
0 1 2 3 4 5 6 7 8 9	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9	0 1 2 3 4 5 6 7 8 9
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

APPENDIX G
PLATE WASTE FORM

DAY								
MEAL								
COMPANY								
SCRAMBLED EGG								
RANCH SAUCE								
POTATOES								
PEACHES								
FRESH FRUIT								
BREAD								
MILK								
BEVERAGE								
WATER								
CEREAL								
OATMEAL								
COFFEE								
PEANUT BUTTER								
JELLY								
HOT SAUCE								

APPENDIX H
FDA-STYLE "NUTRITION FACTS" LABELS AND NUTRITIONAL INSERT

a.

Nutrition Facts		Serv. Size: 1 Bag (43 g) Servings: 1
Amount Per Serving: Calories 180 Fat Cal. 60 Total Fat 6g (10% DV)		
Saturated Fat 3.5g (18% DV) Cholesterol 0mg (0% DV) Sodium 140mg (6% DV) Total Carbohydrate 31g (10% DV) Dietary Fiber 3g (10% DV)		
Sugars 20g Protein 3g Vitamin A (60% DV) Vitamin C (80% DV) Calcium (8% DV) Iron (4% DV) Percent Daily Values (DV) are based on a 2,000 calorie diet.		

b.

Nutrition Facts	
Serving Size 1 Package (227 g)	
Servings Per Container 1	
Amount Per Serving	
Calories 260	Calories from Fat 80
% Daily Value*	
Total Fat 9g	13%
Saturated Fat 3.5g	18%
Cholesterol 40mg	13%
Sodium 1100mg	46%
Total Carbohydrate 25g	8%
Dietary Fiber 2g	9%
Sugars 8g	
Protein 22g	
Vitamin A 15%	Vitamin C 0%
Calcium 8%	Iron 20%
* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower based on your calorie needs:	
Calories: 2,000 2,500	
Total Fat	Less than 65 g 80 g
Sat Fat	Less than 20 g 25 g
Cholesterol	Less than 300 mg 300 mg
Sodium	Less than 2,400 mg 2,400 mg
Total Carbohydrate	300 g 375 g
Dietary Fiber	25 g 30 g
Calories per gram:	
Fat 9 • Carbohydrate 4 • Protein 4	

Figure H-1. FDA-style "Nutrition Facts" labels



NUTRITION: A FORCE MULTIPLIER

VITAMIN AND MINERAL FORTIFICATION

Nutrient levels in the MRE are based on the Recommended Dietary Allowances (Daily Values) which are adapted to meet operational requirements.
Fortification Maximizes the Nutrition of the Ration by Adding or Increasing Vitamins and Minerals within some Ration Components.

Fortification Provides you the Additional Edge to Maximize Your Performance.

The table below shows fortified MRE components. The X shows which vitamins and minerals have been added to a specific component. These components should always be eaten:

RATION COMPONENT	VITAMINS					MINERALS		
	A	C	B1	B2	Niacin	B6	Calcium	Iron
Beverage Base		X					X	
Cocoa Beverage	X	X	X			X		
Cheese Spread	X	X	X			X		
Jalapeno Cheese Spread	X	X	X			X		
Peanut Butter	X	X	X			X		
Crackers			X	X	X	X	X	
Oatmeal Cookie Bar								X
Chocolate Covered Cookie	X	X	X			X		
Fruits		X						



Figure H-2a. Nutritional Insert (Front)

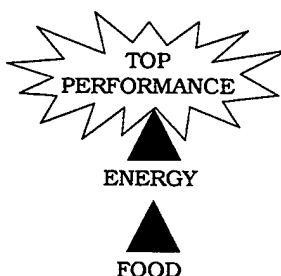


MILITARY RATIONS ARE GOOD PERFORMANCE MEALS

FOOD GIVES YOU ENERGY • THE MORE ENERGY YOU BURN, THE MORE FOOD YOU NEED

You are more active during field training, deployment and combat than in garrison. You need to eat more and drink more water or other fluids in these situations.

When you don't eat enough to meet your body's energy needs, you lose weight. This can lead to a loss of body fluids and degrades your performance.



Restriction of food & nutrients leads to rapid weight loss which leads to:

- ☞ Loss of Strength
- ☞ Decreased Endurance
- ☞ Loss of Motivation
- ☞ Decreased Mental Alertness

In the field you NEED three meals per day. One Meal, Ready-to-Eat (MRE) contains 1200 to 1300 calories. Average daily calorie requirements in the field are 2800 to 3600 calories for males and 2000 to 2800 for females.

Tips: If you can't eat all the food in the ration...

- Eat some of each component to get a balance of nutrients.
- Eat the high carbohydrate items first (crackers, beverage base, fruit, jelly).
- Save unopened dry snack items to eat when you're on the move.

Figure H-2b. Nutritional Insert (Back)

APPENDIX I
NUTRITIONAL FACTS QUESTIONNAIRE

Name: _____
ID: _____

Nutrition Facts Label Questionnaire

Please answer the following questions on the Nutritional label that was placed on the MRE food components.

1. Please bubble YES or NO for each of the following questions and elaborate when possible in the space provided.

YES NO
☐ ☐

Did you notice the "Nutrition Facts" Label on the MRE components?

☐ ☐

Did you read the "Nutrition Facts" Label? _____

IF NO, why not?

2. How difficult/easy is it to understand the "Nutrition Facts" Label on the MRE food items?

Extremely
Difficult

☐

Moderately
Difficult

☐

Slightly
Difficult

☐

Neither Easy
Nor Difficult

☐

Slightly
Easy

☐

Moderately
Easy

☐

Extremely
Easy

☐

3. Using the scale below rate how informative the "Nutrition Facts" Label is.

Not At All
Informative

☐

Slightly
Informative

☐

Moderately
Informative

☐

Very
Informative

☐

Extremely
Informative

☐

4. Did you use the information that was provided on the "Nutrition Facts" Label?
IF YES, what parts of the label did you use?

☐ YES

☐ NO

5. With the "Nutrition Facts" Label on the MRE items did any of the following occur? Choose all that apply.

☐ Ate less of an MRE item than I normally do (which items: _____)

☐ Ate more of an MRE item than I normally do (which items: _____)

☐ Ate the same amount of the MRE items as I normally do

☐ Ate the same items in the MRE I usually do

☐ Ate different items in the MRE than I usually do (which items: _____)

6. Use the scale below to rate how much you like/dislike the "Nutrition Facts" Label on the MRE.

DISLIKE
EXTREMELY

☐

DISLIKE
VERY
MUCH

☐

DISLIKE
MODERATELY

☐

DISLIKE
SLIGHTLY

☐

NEITHER
LIKE NOR
DISLIKE

☐

LIKE
SLIGHTLY

☐

LIKE
MODERATELY

☐

LIKE
VERY
MUCH

☐

LIKE
EXTREMELY

☐

APPENDIX J
FINAL QUESTIONNAIRE

ID: _____
 BATTERY: _____

Final Questionnaire

Thank You for participating in the ration evaluation.
 This is the final questionnaire and chance for you
 to give your opinions of the food items you ate over
 the last 10 days. All answers will be kept confidential.
 Again, Thank You.

Heat & Serve Ration Section

- Of the Heat & Serve food items you ate this week which food items would you LIKE included in the Heat & Serve menus?
- Of the Heat & Serve food items you ate this week which food items would you NOT like included in the Heat & Serve menus?

- Rate the variety of the food groups listed below for the Heat & Serve.

Extremely Too Little Variety 1	Moderately Too Little Variety 2	Slightly Too Little Variety 3	Just Right 4	Slightly Too Much Variety 5	Moderately Too Much Variety 6	Extremely Too Much Variety 7
---	--	--	--------------------	--------------------------------------	--	---------------------------------------

1	2	3	4	5	6	7	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Breakfast Entrees
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Dinner Entrees
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Vegetables
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Starches
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Cakes
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Desserts
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Fruits
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Beverages
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Candy
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Overall Heat & Serve

DO NOT WRITE BELOW THIS LINE

0	1	2	3	4	5	6	7	8	9

E	T	C

4. Please rate the portion sizes of the food items below.

Much Too Small	Moderately Too Small	Somewhat Too Small	Just Right	Somewhat Too Large	Moderately Too Large	Much Too Large
1	2	3	4	5	6	7

1	2	3	4	5	6	7	Eggs
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Waffles
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Corned Beef Hash
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Creamed Ground Beef
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Pork Sausage Links
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Noodles & Chicken
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Lasagna w/Meat Sauce
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Beef Stroganoff
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Sweet & Sour Pork
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Beef Teriyaki
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Oriental Chicken
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Chili Sauce w/Beans
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Spaghetti w/Meat Sauce
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Turkey Tetrazinni
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Hearty Beef Stew
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Vegetables
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Potatoes w/Bacon Pieces
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	White Rice
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Cakes
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Apple Dessert
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Maple Syrup
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Ranchero Sauce
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Cheese Spread
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Overall Heat & Serve

5. How do you think the Heat & Serve ration can be improved?



MRE Section

6. Of the MRE food items you ate this week which food items would you LIKE included in the MRE menus?

7. Of the MRE food items you ate this week which food items would you NOT like included in the MRE menus?

8. Was there enough food in one MRE ration to satisfy your hunger? ☐ YES ☐ NO
IF NO, what would you change?

9. Please rate the portion sizes of the food items below.

Much Too Small	Moderately Too Small	Somewhat Too Small	Just Right	Somewhat Too Large	Moderately Too Large	Much Too Large
1	2	3	4	5	6	7

1	2	3	4	5	6	7	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Pork w/Rice
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Chili Macaroni
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Chicken Stew
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Grilled Chicken
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Spaghetti w/Meat Sauce
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Smoky Franks
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Beef Stew
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Ham Slices
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Pork Chow Mein
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Tuna w/Noodles
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Chicken w/Rice
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Esc. Potatoes w/Ham
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Chow Mein Noodles
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Tavern Nuts
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Oatmeal Cookie Bar
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Potato Sticks
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Chocolate Covered Cookie
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Pound Cake
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Chewy Brownie
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Beverages
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Coffee

10. Do you have any comments on the MRE packaging?



11. Rate the variety of the food items in the MRE ration you ate during this evaluation.

Extremely Too Little Variety 1	Moderately Too Little Variety 2	Slightly Too Little Variety 3	Just Right 4	Slightly Too Much Variety 5	Moderately Too Much Variety 6	Extremely Too Much Variety 7
---	--	--	--------------------	--------------------------------------	--	---------------------------------------

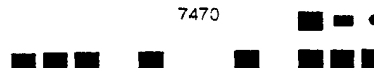
1	2	3	4	5	6	7	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Entrees
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Rice
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Crackers
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Spreads
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Snacks
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Pastries
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Fruit Bars
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Granola Bars
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Desserts
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Fruits
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Cakes
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Candy
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Beverages
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Overall MRE

12. Were any of the food items damaged?

☐ YES

☐ NO

IF YES, which items and where did you store that ration?



13. Of the 12 menus available in the MRE, how many MRE menus would you like each of the following items in?

None	1/4	1/2	3/4	All	
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Hot Tea (bag)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Iced Tea (powder)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Coffee
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Beverage Powder (Sugar)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Beverage Powder (SugarFree)
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Apple Cider
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	Other: _____

Hot Sauce Section

14. Rate the following characteristics of the hot sauce container.

	Very Poor 1	Moderately Poor 2	Slightly Poor 3	Neither Poor Nor Good 4	Slightly Good 5	Moderately Good 6	Very Good 7
Ease of opening	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ease of pouring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Durability of package	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Taste of the hot sauce	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please explain any ratings below "Neither Poor Nor Good" (ratings of 1, 2, or 3)

15. Rate the durability of the hot sauce container for field use.

Not at All Durable	Somewhat Durable	Moderately Durable	Very Durable	Extremely Durable
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

16. Rate the amount of trash generated by the hot sauce container.

Extremely Inappropriate	Moderately Inappropriate	Somewhat Inappropriate	Neither Inappropriate Nor Appropriate	Somewhat Appropriate	Moderately Appropriate	Extremely Appropriate
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

17. Were there any problems while opening the hot sauce container?
IF YES, please explain.

☐ YES
☐ NO

18. Was the hot sauce container adequate for field use?
IF NO, please explain.

☐ YES ☐ NO

19. Would you like a hot sauce container that can be reclosed.

☐ YES

☐ NO



Nutrition Facts Label Section

20. Please answer YES or NO for each of the following questions and elaborate when possible in the space provided.

YES	NO
<input type="radio"/>	<input type="radio"/> Did you understand the "Nutrition Facts" Label? IF NO, what did you not understand?
<input type="radio"/>	<input type="radio"/> Did you read the "Nutrition Facts" Label? IF YES, how often <input type="radio"/> Occasionally <input type="radio"/> Sometimes <input type="radio"/> Often <input type="radio"/> Always
<input type="radio"/>	<input type="radio"/> Do you trust that the nutrition information on the "Nutrition Facts" Label is accurate? IF NO, please explain:
<input type="radio"/>	<input type="radio"/> Are you aware of the Food & Drug Administration "Nutrition Facts" food label currently found on all commercial foods?
<input type="radio"/>	<input type="radio"/> Do you use the information on such labels to decide which products to purchase in grocery stores?
<input type="radio"/>	<input type="radio"/> Do you have any difficulty using the labels to make comparisons between products? IF YES, please explain:
<input type="radio"/>	<input type="radio"/> Do you know how to use the Percent Daily Value information?
<input type="radio"/>	<input type="radio"/> Are you using labels to change your current eating habits?
<input type="radio"/>	<input type="radio"/> Did you use the "Nutrition Facts" Label to help you decide what foods to eat from the MRE? IF YES, please explain which foods:

21. How difficult/easy was it to understand the "Nutrition Facts" Label on the MRE food items?

Extremely
Difficult

☐

Moderately
Difficult

☐

Slightly
Difficult

☐

Neither Easy
Nor Difficult

☐

Slightly
Easy

☐

Moderately
Easy

☐

Extremely
Easy

☐

22. Using the scale below rate how informative the "Nutrition Facts" Label was.

Not At All
Informative

☐

Slightly
Informative

☐

Moderately
Informative

☐

Very
Informative

☐

Extremely
Informative

☐

23. Using the scale below rate how helpful the "Nutrition Facts" Label was.

Not At All
Helpful

☐

Slightly
Helpful

☐

Moderately
Helpful

☐

Very
Helpful

☐

Extremely
Helpful

☐☐

24. With the "Nutrition Facts" Label on the MRE items did any of the following occur? Choose all that apply.

- ☐ Ate less of an MRE item than I normally do (which items: _____)
- ☐ Ate more of an MRE item than I normally do (which items: _____)
- ☐ Ate the same amount of the MRE items as I normally do
- ☐ Ate the same items in the MRE I usually do
- ☐ Ate different items in the MRE than I usually do (which items: _____)

25. What part of the "Nutrition Facts" Label did you look at first? _____
Why? _____

What part of the "Nutrition Facts" Label did you find MOST informative? _____
Why? _____

Which part of the "Nutrition Facts" Label did you find LEAST informative? _____
Why? _____

What "Nutrition Facts" Label information did you use to help you? _____

26. Use the scale below to rate how much you like/dislike the "Nutrition Facts" Label on the MRE.

DISLIKE EXTREMELY	DISLIKE VERY MUCH	DISLIKE MODERATELY	DISLIKE SLIGHTLY	NEITHER LIKE NOR DISLIKE	LIKE SLIGHTLY	LIKE MODERATELY	LIKE VERY MUCH	LIKE EXTREMELY
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

27. Do you think the "Nutrition Facts" Label should be included in the following rations? YES NO

MRE	<input type="radio"/>	<input type="radio"/>
Heat & Serve	<input type="radio"/>	<input type="radio"/>

28. What do you think of the "Nutrition Facts" Label overall?

29. Do you have any additional comments on the "Nutrition Facts" Label?

MRE Insert Section

30. Did you read the "MRE Insert"? ☐ YES ☐ NO
IF NO, why?

31. Was the information on the "MRE Insert" helpful? ☐ YES ☐ NO
IF NO, what type of information would you like available on the insert?

IF YES, what information was helpful?

32. How difficult/easy was it to understand the "MRE Insert" on the MRE food items?

Extremely Difficult	Moderately Difficult	Slightly Difficult	Neither Easy Nor Difficult	Slightly Easy	Moderately Easy	Extremely Easy
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

33. Using the scale below rate how informative the "MRE Insert" was.

Not At All Informative	Slightly Informative	Moderately Informative	Very Informative	Extremely Informative
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

34. Did the "MRE Insert" help you to better understand/use the "Nutrition Facts" Label on the MRE food components? ☐ YES ☐ NO

IF NO, would you like information on the "MRE Insert" to help you understand/use the "Nutrition Facts" Label better ☐ YES ☐ NO

IF YES, what would you like included on the "MRE Insert"? Please explain.

35. Did the information on the "MRE INSERT", that was available in the MRE, cause any of the following occur? Choose all that apply.

- ☐ Ate less of an MRE item than I normally do (which items: _____)
- ☐ Ate more of an MRE item than I normally do (which items: _____)
- ☐ Ate the same amount of the MRE items as I normally do
- ☐ Ate the same items in the MRE I usually do
- ☐ Ate different items in the MRE than I usually do (which items: _____)
- ☐ Ate the appropriate items for my activity level

36. What part of the "MRE Insert" did you look at first? _____
Why? _____

What part of the "MRE Insert" did you find MOST informative? _____
Why? _____

What part of the "MRE Insert" did you find LEAST informative? _____
Why? _____

37. What other topics would you like to know more about that were not addressed on the "MRE Insert"?

38. How can the "MRE Insert" be improved?

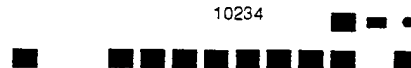
39. Use the scale below to rate how much you like/dislike the "MRE Insert" that was included in the MRE.

DISLIKE EXTREMELY	DISLIKE VERY MUCH	DISLIKE MODERATELY	DISLIKE SLIGHTLY	NEITHER LIKE NOR DISLIKE	LIKE SLIGHTLY	LIKE MODERATELY	LIKE VERY MUCH	LIKE EXTREMELY
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

40. Do you think the "MRE Insert" should be included in the MRE? ☐ YES ☐ NO

41. What do you think of the "MRE Insert" overall?

42. Do you have any further comments on the "MRE Insert"?



APPENDIX K
FOCUS GROUP SUMMARY

APPENDIX K

FOCUS GROUP SUMMARY

The focus group consisted of approximately 10 soldiers that participated in the field evaluation. They were asked various questions about the food items they had over the past 10 days. Soldiers' suggestions and recommendations are listed below.

MRE XV - ITEMS

Although, most of the MRE food items were acceptable to the soldiers, they did prefer a few entrees more than others, such as Chili Macaroni, Franks, Pork Chow Mein, and Grilled Chicken Breast. The snack items also seemed to be well received by soldiers. Some of their favorites included the Chocolate Covered Cookie Bar, Oatmeal Cookie Bar, and all of the MRE Cakes. Soldiers commented "The MRE Cakes were the best thing developed for the MRE" and "The Cakes are moist and flavorful". A preference for the Wet Pack Fruit over the Dehydrated Fruit was stated, along with approval of BBQ Sauce and Jalepeno Cheese Spread. During the focus group, soldiers were asked what kind of items they would like to see in the MRE. Their responses included Peanut M&M's, Granola Bars, Apple & Cinnamon Bars, Beef Jerky, Canned Tuna, Sardines, Canned Tomatoes, and Canned Fruit. Soldiers would like to see larger portions of the Beverage Base served with the MRE. One soldier commented, he uses 2-1/2 packets to fill his canteen. Some of their comments included, "The name brand items that are incorporated in the MRE get consumed quickly because soldiers are familiar with them and assume they are good" and "They are also good for morale". A suggestion from the focus group was to improve MRE menus by adding items to complement the entrees, such as adding cheese to the spaghetti menu.

MRE - NUTRITIONAL LABELING

Soldiers felt the nutritional label and informational insert were very beneficial. They stated their eating habits will change due to the nutritional label and informational insert. Food identified as high fat foods will only be consumed if very hungry. With this information available, soldiers can decide the amount of food to eat for his/her activity level. Interest was shown for having nutritional information available for the Heat and Serve ration.

HEAT AND SERVE - ITEMS

Overall, soldiers found most of the breakfast items acceptable. It was suggested, that the breakfast items need the most work, especially the variety. The breakfast items that were most liked were the Waffles, Oatmeal, and the Ranchero Sauce. Soldiers also discussed the items they did not like, these were the Eggs, Potatoes, Creamed Ground Beef, and the Corned Beef Hash. Comments about these products included, "The new eggs are better than the old" and "The Freeze-Dried Eggs were watery". The soldiers in the focus group requested items like grits to be incorporated into the ration. They suggested it could be packaged like the oatmeal.

EXPRESS MEAL - ITEMS

The Express Meal Dinner entrees were liked by soldiers. The items they liked the most, were the Spaghetti, Beef Teriyaki, and Turkey Tetrazzini. They commented that "The meat pieces in the freeze-dried items are too small and should be made bigger". The Sweet and Sour Pork was well received, but the soldiers would like to see an individual packet of sauce available to accompany the entree. All of the Heat and Serve vegetables served along with the Express Entrees were well received; the comments did suggest that the Mixed Vegetables was the least liked by this group. Soldiers did recommend a number of dinner items they would like to see in the future; these include Ravioli, Baked Ziti, Fish Entrees, and Rice & Beans w/ Adobo Sauce. Soldiers were apprehensive about the dehydrated entrees. They felt without portable water, which is not always available, there would be problems with soldiers consuming a sufficient amount of food.

APPENDIX L
SUGGESTED FOOD ITEMS TO INCLUDE IN THE MRE

APPENDIX L

SUGGESTED FOOD ITEMS TO INCLUDE IN THE MRE

Participants recommended several food items they would like to see added in the MRE. This information was collected in the background questionnaire before the field evaluation started, to prevent any influence of opinions by the new food items. Below are the foods listed by food categories that were mentioned by participants. Participants were also asked in the background questionnaire if they would want any food items dropped. The 73% of respondents that answered yes, they would like food items dropped, suggested that Escallop Potatoes (8)*, Corn Beef Hash (7), Omelet w/ Ham (6), Ham Slices (3), and BBQ Pork (2), be eliminated from the MRE menus.

ENTREE: Lasagna (7), Tacos (2), Pizza (2), Oriental Foods (2), Hot Dogs, Chicken, Tuna

CRACKERS: Ritz (7), Graham (4), Saltines (3), Triscuits, Townhouse, Wafers, Wheat Crackers

SPREADS: Different types of cheese (4) - Sharp, Cheddar, American, Nacho, and Cream Cheese; Mayonnaise (2), Apple butter, Sour cream & onion dip

SEASONINGS: Garlic (4), Pepper (3), Mrs. Dash, Salt, All spice, Salt, Paprika, Onion

SNACKS: Peanuts (4), Beef Jerky (3), Oatmeal Cookies, Raisin Cookies, Little Debbie's, Fig Newtons, Pretzels, Chips, Doritos

FRUIT: Bananas (3), Strawberries (2), Banana Chips (2), Grapes, Apples, Dried Fruit, Fruit Roll-ups

CANDY: Snickers (6), Peanut Butter Cups, Butterfingers, M&M's, Reese Pieces, Lollipops

BEVERAGES: Tropical Punch (3), Gatorade (2), Iced Tea (2), Tang, Lemonade, Hi-C

OTHER: Put MRE bread in MRE's, Add better gum or add more pieces

* The number (N) next to food items represents the number of participants that responded for that item.

APPENDIX M
SUGGESTED FOOD ITEMS TO INCLUDE IN THE HEAT AND SERVE

APPENDIX M

SUGGESTED FOOD ITEMS TO INCLUDE IN THE HEAT AND SERVE

Participants recommended several food items they would like to see added in the Heat and Serve. This information was collected in the background questionnaire before the field evaluation started, to prevent any influence of opinions by the new food items. Below are the foods listed by food categories that were mentioned by participants. Participants were also asked in the background questionnaire if they would want any food items dropped. Although more than half (57 %) of respondents replied no, the 40% of respondents that answered yes, they would like items dropped, suggested that they would want the eggs (5)*, ham (3), and sausage (3), eliminated from the menus.

BREAKFAST ENTREES: Pancakes (11), Waffles (9), Bacon (3), French Toast (2), Bagel (2), Omelet (2), Potatoes, Muffins, Different Eggs

DINNER ENTREES: Macaroni (4), Steak (3), Tacos (3), Hotdogs (3), Hamburgers (3), Ribs (2), Burritos (2), Fish-Seafood, Italian Food, Mexican Food

VEGETABLES: Broccoli (5), Green Beans (2), Mixed Veggies (2), Creamed Corn (2), Asparagus, Spinach, Cabbage, Beets

FRUITS: Strawberries (3), Peaches, Plums, Kiwi, Banana, Pineapple, Watermelon, Dried Fruit

SPREADS: Mayonnaise (2), Cream Cheese (2), Salsa, Apple Butter

SEASONINGS: Garlic (4), Salt (2), Ketchup (3), Paprika, Taco Sauce

SNACKS: Pudding (2), Chips, Pretzels, Donuts, Peanut Butter Crackers, Sunflower Seeds, Fig Newtons

CANDY: Snickers (3), M&M's (2), Gummy Bears

BEVERAGES: Iced Tea (4), Soda (2), Fruit Juice (2), Lemonade, Hi-C

OTHER: Ice Cream

* The number (N) next to food items represents the number of participants that responded for that item.

APPENDIX N
FOCUS GROUP WITH FOOD SERVICE PERSONNEL

APPENDIX N

FOCUS GROUP WITH FOODSERVICE PERSONNEL

Following the conclusion of the field test, a study investigator met with the food service personnel in Service Battery to obtain feedback on ration preparation in general and specifically on the Express Entrees.

The food service personnel agreed that the Express entrees were easily prepared and served but relative to standard heat and serve entrees no easier or harder. While they noted that the time needed for preparation was shorter than heating tray cans, the process required more steps and ultimately required as much time and effort due to the fact that the water for rehydrating had to be heated and measured out. If these entrees had been used for remote feedings the additional step of putting prepared food into insulated containers (e.g., mermite containers) would also be necessary. The cooks commented that the package directions were inconsistent regarding the amount of water to add and that this amount often seemed excessive, making the entrees too "loose."

When asked about clean-up, the food service personnel consistently felt that the Express Entrees required greater effort. They contrasted standard Tray Ration entrees where the only clean-up is a serving spoon to the current situation where both a vessel for heating water and entree rehydration and, potentially, for serving/transporting the entree were also required.

The cooks found the entrees packaged in number 10 cans slightly easier to work with than those packaged in pouches. They also had comments, similar to the soldiers, that the texture and appearance of the entrees were too similar to one another and that the size of the meat pieces was too small. While not having any real basis for their opinion, many cooks felt skeptical about dehydrated entrees. The soldiers (non-food service personnel), in general, expressed a similar opinion in rating the desirability of freeze dried versus other forms (e.g., canned) of entrees. This opinion is predictable with many past explorations of novel technologies (e.g., irradiation) and highlights that use of items such as the Express Entrees faces both attitudinal and acceptance challenges.

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